

# **PASSIVE RFID TAG THAT RETAINS STATE AFTER TEMPORARY LOSS OF POWER**

## **ABSTRACT OF THE DISCLOSURE**

5 The present invention provides an RFID transponder that includes a state holding  
cell that maintains the present state of the RFID transponder during temporary losses of  
power. After power is restored to the RFID transponder, the state holding cell restores  
the present state to the RFID transponder so that transactions with an RFID interrogator  
can continue without having re-transmit redundant commands. The RFID transponder  
further comprises an RF front end adapted to receive an interrogating RF signal. An  
10 analog circuit is coupled to the RF front end and is adapted to recover analog signals  
from the received interrogating RF signal. The analog circuit provides state information  
defining a desired state of the RFID transponder corresponding to the analog signals. A  
digital state machine is coupled to the analog circuit and adapted to execute at least  
one command in accordance with the state information. A memory is coupled to the  
15 digital state machine and is adapted to store and retrieve digital data responsive to the  
at least one command executed by the digital state machine. A power capacitor is  
coupled to the RF front end and derives a voltage rectified from the interrogating RF  
signal to charge the power capacitor. The power capacitor thereby provides electrical  
power for the analog circuit, the digital state machine and the memory. The state  
20 holding cell is coupled to the analog circuit and the digital state machine and is adapted  
to maintain the state information during a loss in power provided by the power capacitor  
due to lapse in receipt of the interrogating RF signal by the RF front end.